

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A particulate composition comprising at least two different nanocrystalline materials selected from the group consisting of oxides and hydroxides of elements of Groups IIA, IIIA, IVA, transition metals and lanthanide series of the CAS Periodic Table, said different materials being co-solidified with one of said different nanocrystalline materials forming a matrix in which the crystallites of the at least one other different nanocrystalline material are dispersed and intimately intermingled at a nano-level, with at least one of the materials exhibiting an average crystallite size of up to about 4 nm by XRD analysis.
2. (Original) The composition of claim 1, including from 2-4 of said different materials.
3. (Original) The composition of claim 2, including 2 of said different materials.
4. (Previously Presented) The composition of claim 1, all of said different materials exhibiting an average crystallite size of up to about 4 nm by XRD analysis.
5. (Original) The composition of claim 1, including aluminum oxide and magnesium oxide as said different materials.

6. (Previously Presented) The composition of claim 1, said composition having a BET surface area which is at least about 30% larger than the surface area of at least one of the nanocrystalline materials making up the composition, if said at least one nanocrystalline material were prepared alone.

7. (Previously Presented) The composition of claim 6, said composition having a BET surface area which is at least about 50% larger than the surface area of at least one of the nanocrystalline materials making up the composition, if said at least one nanocrystalline material were prepared alone.

8. (Currently Amended) The composition of claim 1, said different materials selected from the group consisting of the oxides and hydroxides of Al, Mg, Ca, Sr, Ba, Zn, Co, Ni, Fe, Ti, Pd, Rh, V, Mn, Ga and Si.

9. (Previously Presented) The composition of claim 1, there being two of said different materials selected from the group consisting of the combinations, $\text{Al}_2\text{O}_3\cdot\text{MgO}$, $\text{Al}_2\text{O}_3\cdot\text{CaO}$, $\text{Al}_2\text{O}_3\cdot\text{SrO}$, $\text{Al}_2\text{O}_3\cdot\text{BaO}$, $\text{Al}_2\text{O}_3\cdot\text{ZnO}$, $\text{Al}_2\text{O}_3\cdot\text{CoO}$, $\text{Al}_2\text{O}_3\cdot\text{NiO}$, $\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$, $\text{Al}_2\text{O}_3\cdot\text{TiO}_2$, $\text{Al}_2\text{O}_3\cdot\text{PdO}$, $\text{Al}_2\text{O}_3\cdot\text{RhO}$, $\text{Al}_2\text{O}_3\cdot\text{V}_2\text{O}_3$, $\text{Al}_2\text{O}_3\cdot\text{MnO}$, $\text{Ga}_2\text{O}_3\cdot\text{MgO}$, and $\text{SiO}_2\cdot\text{MgO}$.

10. (Original) The composition of claim 1, one of said materials being present in a greater amount by weight as compared with another of said materials.

11. (Original) The composition of claim 1, said composition being made up of first and second different nanocrystalline materials, with a molar ratio of the first and second materials ranging from about 0.1-10.

12. (Currently Amended) A particulate composition comprising at least two different nanocrystalline materials selected from the group consisting of oxides and hydroxides of elements of Groups IIA, IIIA, IVA, transition metals and lanthanide series of the CAS Periodic Table, said different materials being co-solidified with one of said different nanocrystalline materials forming a matrix in which the crystallites of the at least one other different nanocrystalline material are dispersed and intimately intermingled at a nano-level, said composition having a BET surface area which is at least about 30% larger than the surface area of at least one of the nanocrystalline materials making up the composition, if said at least one nanocrystalline materials were prepared alone.

13. (Original) The composition of claim 12, including from 2-4 of said different materials.

14. (Original) The composition of claim 13, including 2 of said different materials.

15. (Previously Presented) The composition of claim 12, all of said different materials exhibiting a crystallite size of up to about 4 nm by XRD analysis.

16. (Original) The composition of claim 12, including aluminum oxide and magnesium oxide as said different materials.

17. (Previously Presented) The composition of claim 12, said composition having a BET surface area which is at least about 50% larger than the surface area of at least one of the nanocrystalline materials making up the composition, if said at least one nanocrystalline material were prepared alone.

18. (Previously Presented) The composition of claim 12, said different materials selected from the group consisting of oxides and hydroxides of Al, Mg, Ca, Sr, Ba, Zn, Co, Ni, Fe, Ti, Pd, Rh, V, Mn, Ga and Si.

19. (Previously Presented) The composition of claim 12, there being two of said different materials selected from the group consisting of the combinations, $\text{Al}_2\text{O}_3\cdot\text{MgO}$, $\text{Al}_2\text{O}_3\cdot\text{CaO}$, $\text{Al}_2\text{O}_3\cdot\text{SrO}$, $\text{Al}_2\text{O}_3\cdot\text{BaO}$, $\text{Al}_2\text{O}_3\cdot\text{ZnO}$, $\text{Al}_2\text{O}_3\cdot\text{CoO}$, $\text{Al}_2\text{O}_3\cdot\text{NiO}$, $\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$, $\text{Al}_2\text{O}_3\cdot\text{TiO}_2$, $\text{Al}_2\text{O}_3\cdot\text{PdO}$, $\text{Al}_2\text{O}_3\cdot\text{RhO}$, $\text{Al}_2\text{O}_3\cdot\text{V}_2\text{O}_3$, $\text{Al}_2\text{O}_3\cdot\text{MnO}$, $\text{Ga}_2\text{O}_3\cdot\text{MgO}$, and $\text{SiO}_2\cdot\text{MgO}$.

20. (Original) The composition of claim 12, one of said materials being present in a greater amount by weight as compared with another of said materials.

21. (Original) The composition of claim 12, said composition being made up of first and second different nanocrystalline materials, with a molar ratio of the first and second materials ranging from about 0.1-10.

22-29. (Canceled)

30. (Currently Amended) A solid composition comprising a mixture of at least two different solid hydroxides of elements of Groups IIA, IIIA, IVA, transition metals and lanthanide series of the CAS Periodic Table, said different materials being co-solidified with one of said different nanocrystalline materials forming a matrix in which the crystallites of the at least one other different nanocrystalline materials are dispersed and intimately intermingled at a nano-level.

31. (Original) The composition of claim 30, including from about 2-4 of said different solid hydroxides.

32. (Original) The composition of claim 31, including two of said different solid hydroxides.

33. (Previously Presented) The composition of claim 30, including solid aluminum hydroxide and solid magnesium hydroxide as said different solid hydroxides.

34. (Currently Amended) The composition of claim 30, said different solid hydroxides selected from the group consisting of the solid hydroxides of Al, Mg, Ca, Sr, Ba, Zn, Co, Ni, Fe, Ti, Pd, Rh, V, Mn, Ga and Si.

35. (Original) The composition of claim 30, one of said solid hydroxides being present in a greater amount by weight as compared with another of said solid hydroxides.

36. (Original) The composition of claim 30, said composition being made up of first and second different solid hydroxides, with a molar ratio of the first and second solid hydroxides ranging from about 0.10-10.

37. (Original) A solid, particulate, nanocrystalline composition prepared by the thermal conversion of the hydroxide composition of claim 30 to the corresponding oxides.

38-44. (Canceled)

45. (Currently Amended) Solid oxides or hydroxides produced by the method comprising the steps of:

separately preparing a plurality of different alkoxide solutions in a compatible solvent, each alkoxide including an ion moiety selected from the group consisting of the ions of the

elements of Groups IIA, IIIA, IVA, the transition metals and the lanthanide series of the CAS Periodic Table; mixing and hydrolyzing said plurality of alkoxide solutions to give a gel comprising the corresponding nanocrystalline hydroxides of said different alkoxides; and drying said gel to yield a solid co-solidified hydroxide composition with one of said nanocrystalline hydroxides forming a matrix in which the crystallites at least one other of said nanocrystalline hydroxides are dispersed, or thermally converting said hydroxides to the corresponding solid oxides thereby yielding a co-solidified oxide composition with one of said oxides forming a matrix in which the at least one other of said oxides is dispersed.

46-66. (Canceled)